

I. Remarks

Claims 1-10 and 12-25 are pending in this case: Of these, dependent claims 4-6, 8 and 25 are specifically rejected under 35 USC Section 103(a) as being obvious over the combination of Kanakkanatt, WO 96/06643 (“the ‘643 application”), in view of the Journal of Physical Chemistry article, “Photochromism and Thermochromism Driven by Intramolecular Proton Transfer in Dinitrobenzylpyridine Compounds,” authored by Corval et al. (hereafter “the Corval et al. reference”); dependent claims 10, 12-15, 20-22 and 24 are rejected, also under Section 103(a), as being obvious over the combination of the ‘643 application in view of Patel et al., US Patent No. 3,999,946 (“the ‘946 patent”); and claim 11 has been previously cancelled.

Preliminarily, Applicant notes that the latest Official Action makes no specific rejection concerning, nor indicates the allowability or allowance of, *any* of claims 1-3, 7, 9, 16-19, and 23, which claims include the two independent claims 1 and 19. Clarification is respectfully requested.

Applicant also notes that the latest Official Action makes no reference to the Information Disclosure Statement submitted on March 23, 2004. Acknowledgement of the examiner’s receipt and due consideration of that IDS is respectfully solicited.

Turning then to the rejections of claims 4-6, 8, and 25, the examiner now acknowledges that the ‘643 application fails to disclose photochromic indicators which discolor as a function of time and temperature. Nevertheless, the examiner asserts that Corval et al. teach the instantly-claimed compounds, and that it would have been obvious to one of ordinary skill in the art to have substituted the compounds of Corval et al. for those of the ‘643 application since “[b]oth the compounds of Corval et al. and those

disclosed by Kanakkanatt are used as time-temperature indicators.” Official Action, p. 3. Applicant strenuously disagrees. For even accepting, *arguendo*, that the compounds of Corval et al. are those instantly claimed, there is no motivation to make the argued substitution of such compounds with the photochromic dyes of Kanakkanatt.

A *prima facie* case of obviousness *requires* “some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.” *See* MPEP § 2143; *see also* In re Fine, 5 USPQ2d 1596 (Fed. Cir. 1998); and In re Jones, 21 USPQ2d 1941 (Fed. Cir. 1992). Without motivation, it is irrelevant that the references *may* separately teach each and every element of the claimed invention. *See* In re Rouffet, 47 USPQ2d 1453 (Fed. Cir. 1998). “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination.” MPEP § 2143.01 (*citing* In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990)(*emphasis original*)). Nor is it enough to provide conclusory statements respecting a supposed motivation to combine. “The factual inquiry to combine references must be thorough and searching.” In re Sang Su Lee, 61 USPQ2d 1430 (Fed. Cir. 2001)(*quoting* McGinley v. Franklin Sports, Inc., 60 USPQ2d 1001 (Fed. Cir. 2001)). “Particular findings must be made as to the reason the skilled artisan, *with no knowledge of the claimed invention*, would have selected these components in the manner claimed.” *Id.* (*quoting* Brown & Williamson Tobacco Corp. v. Phillip Morris Inc., 56 USPQ2d 1456 (Fed. Cir. 2000)(*emphasis added*)).

Instantly, the argued motivation to combine comes from the assertion that “[b]oth the compounds of Corval et al. and those disclosed by Kanakkanatt are used as time-

temperature indicators,” Official Action, p. 3, and, as such, the “[s]ubstitution of one compound for another known for the same use would have been well within the skill of the ordinary artisan.” *Id.* The failure of the examiner’s presumption in these regards is that it finds no support in the record.

In the first instance, neither Kanakkanatt nor Corval et al. teach any photochromic materials which function as time *and* temperature dependent indicators. With respect to Kanakkanatt, the examiner has already acknowledged as much. Rather, the ‘643 application discloses photochromic dyes which change color in response to stimulation by energy of specific wavelengths, to indicate, for instance, irradiation of a packaged product. Such photochromic dyes *may* (when the color change is not permanent) revert to their previous condition when the stimulus is removed. But such reversion is not taught to be temperature dependent. Likewise, Corval et al. explicitly discloses *no* photochromic compound having a time and temperature dependent discoloration. And even to the extent that the examiner contends that the compounds of Corval et al. are those of the instant application, and thus inherently have time and temperature dependent discoloration, it is settled that obviousness “*cannot* be predicated on what is unknown.” In re Spormann, 150 USPQ 449 (CCPA 1966)(*emphasis added*). “[Inherency] is quite immaterial if...one of ordinary skill in the art would not appreciate or recognize the inherent result.” *Id.* (*quoting In re Naylor*, 152 USPQ 108 (CCPA 1966)).

In light of the foregoing, Applicant respectfully submits that the photochromic compounds of Corval et al. and Kanakkanatt simply cannot be characterized as obvious substitutes.

In addition to the absence of any specific teaching in Corval et al. of time-

temperature indicating properties of the photochromic compounds thereof, that reference fails to suggest (also contrary to the examiner's assertions) any time-temperature indicating utilities for such compounds. Rather, the only specific utility for the compounds of Corval et al. even mentioned in that reference is incorporation into "optically bistable systems for optical data storage." J. Phys. Chem., p. 19315 (1996). Thus, even accepting, *arguendo*, that the compounds of Corval et al. are photochromic materials capable of discoloration, following photo-induced coloration thereof, which proceeds as a function of time and temperature, and that one or ordinary skill in the art would have understood such to be the case from the Corval et al. reference, there exists no suggestion, explicit or otherwise, to incorporate such compounds in a substrate for packaging of or for attachment to products which are sensitive to aging and temperature. On the contrary, the aforementioned explicit teaching from Corval et al. leads one of ordinary skill in the art in an entirely different direction; namely, optical data storage applications.

In view of the above, Applicant submits that the rejections of dependent claims 6, 8, and 25 are rendered moot. Nevertheless, Applicant notes that the art of record, taken alone or in any permissible combination, fails to either anticipate or render obvious the invention of these claims, and should the examiner maintain the rejections thereof, Applicant reserves the right to place the claims in allowable form, and/or argue such rejections.

Turning then to the rejections of dependent claims 10, 12-15, 20-22 and 24, Applicant notes, in the first place, that base claims 1 and 19 are not specifically rejected over the asserted combination of the '643 application in view of Patel et al. And as the

examiner has already conceded, the primary reference, Kanakkanatt, cannot anticipate any of the pending claims. In light of the foregoing, Applicant submits that the rejection must be reformulated to include the further reliance on, presumably, Corval et al., or, alternatively, to set forth how the *base claims* are, in the examiner's view, rendered obvious by the combination of Kanakkanatt taken in view of Patel et al.

Despite the foregoing deficiencies in the examiner's *prima facie* case, and in an attempt to respond in order to advance the prosecution of this application, Applicant respectfully submits that the combination of Kanakkanatt in view of Patel et al. cannot support a rejection of any of the pending claims, at least because, as the examiner has previously acknowledged, Kanakkanatt fails to teach photochromic indicators which discolor as a function of time and temperature, while Patel et al. disclose acetylinic compounds which are *not* photochromic. Thus, even assuming, *arguendo*, the propriety of combining these references as argued by the examiner (which Applicant does not concede), the resulting combination would still fail to comprehend all limitations of the instantly claimed invention. *See MPEP § 2143 (Inter alia, a prima facie case of obviousness requires that the references, when combined, teach or suggest all of the claimed limitations).*

And even were the rejection reformulated to incorporate the combination of Kanakkanatt in view of Corval et al., and further in view of Patel et al., the same would not render obvious the base claims for the reasons already given, and would likewise fail to render obvious the particularly rejected dependent claims 10, 12-15, 20-22 and 24 in light of the fact that Patel et al. (or, for that matter, any of the other references of record) fails to teach any photochromic indicators, reversible or irreversible, a reference scale

arranged in the region of the time-temperature integrator, employment of a filter which is impermeable to the light that effects photo-induced coloration, or the step of determining the quality of a product by evaluating the degree of discoloration of an indicator with the aid of a reference scale. On the contrary, Patel et al. teach, as indicated, acetylinic compounds which, reversible or irreversible, are *not* photochromic. As such, this disclosure does not, alone or in combination with the other references of record, teach or suggest the employment of reversible and irreversible indicators having photochromic properties in a substrate for packaging of or attachment to products which are sensitive to aging and temperature. Similarly, the failure of Patel et al. to teach photochromic materials likewise defeats the examiner's contention that one of ordinary skill in the art would have been motivated, on the basis of that disclosure, to employ in a substrate such as instantly claimed a filter impermeable to light which effects photo-induced coloration of a reversible indicator. Rather, the teaching of Patel et al. motivates no more than the employment of a filter to protect sensitive, non-photochromic acetylinic compounds from exposure to short-wavelength UV or UV-visible radiation. And while Patel et al. does describe the employment of a Munsell Photometer chart to characterize color development in the acetylinic compounds thereof, Applicant can find no suggestion that such means can be included in a substrate in the region of a time-temperature indicator, or otherwise employed in combination with such a time-temperature indicator to determine the quality of a product sensitive to aging and temperature.

II. Conclusion

In view of the foregoing, Applicant submits that the claims are in condition for immediate allowance. In the event, however, that any of the instant rejections are subsequently continued, Applicant respectfully solicits a further non-final action in view of the several considerable deficiencies, noted above, of the Official Action of April 22, 2004. Of course, the examiner is invited to contact Applicant's undersigned counsel at (734) 662-0270 if she should have any questions respecting this paper.

Respectfully submitted,

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Dated: 22 September 2004